

### **Amendments to the Specification:**

Please amend the specification as indicated below.

On page 6, line 1, please replace the paragraph starting with "Fig. 3 is a cross-sectional isometric view..." with the following paragraph:

Fig. 3 is a cross-sectional isometric view of the die/core assembly of Fig. 1 before a build up metallization layer is deposited. To facilitate understanding of the build up process, the die/core assembly of Fig. 3 is inverted with respect to the structure of Fig. 1. As shown, the microelectronic die 12 is fixed within an opening 24 in the package core 14 using an encapsulation material 22. The microelectronic die 12 includes electronic circuitry that is implemented on one or more internal layers. Although not shown in Fig. 3, a number of conductive contacts are distributed on the upper surface of the die 12 to provide an electrical interface to the circuitry of the die 12. The package core 14 can be formed from any of a variety of materials including, for example, bismaleimide triazine (BT) resin-based materials, flame retarding glass/epoxy materials (e.g., FR4), polyimide materials, ceramic materials, metal materials (e.g., copper), and others. A metal core material has the advantage that it will also serve as a heat spreader to facilitate heat removal from the die 12. In the illustrated embodiment, the package core 14 is formed from a dielectric board material (e.g., a BT board) having a conductive cladding 21 <sup>[[20]]</sup> (e.g., copper foil) covering at least one surface thereof. In one embodiment, for example, a 0.725mm thick board material having part number CCL-HL830 and manufactured by Mitsubishi Gas and Chemical Company is used to form the package core. As will be described in greater detail, the conductive cladding

21 [[20]] can be used as a ground plane within the microelectronic device 10 to provide impedance control for transmission structures therein.

On page 10, line 11, please replace the paragraph starting with "Referring back to Fig. 6, the metallization pattern..." with the following paragraph:

Referring back to Fig. 6, the metallization pattern 44 may also include a ground pad 42 that is conductively coupled to the conductive cladding 21 [[20]] of the underlying package core 14 through one or more via connections (or similar structures) in the dielectric layer 32. During package assembly, this ground pad 42 is conductively coupled to a corresponding ground structure on the interposer 18 that will be tied to ground when the microelectronic device 10 is mounted within an external circuit. The ground pad 42 can also be directly coupled to the ground of the die 12 by a trace portion (not shown) within the metallization pattern 44 that is connected to one or more ground bars 40 on the die 12 through via connections. In this manner, the conductive cladding 21 [[20]] will be grounded during subsequent operation of the microelectronic device 10 and will serve as a ground plane beneath the metallization pattern 44. This ground plane allows transmission lines having a controlled impedance (e.g., microstrip lines) to be provided on the build up metallization layer (i.e., to form the transmission segments 48). In at least one embodiment, a second ground plane is provided on an intermediate layer of the interposer unit 18 that allows stripline transmission lines to be formed on the build up metallization layer. Among other advantages, controlled impedance lines are usually capable of significantly higher operational speeds than

lines having a non-controlled impedance. Space providing, any number of ground pads 42 can be implemented as part of the build up metallization layer.

On page 11, line 1, please replace the paragraph starting with "In an alternative approach, the conductive cladding..." with the following paragraph:

In an alternative approach, the conductive cladding 21 ~~[[20]]~~ of the package core 14 is used as a power plane. In this approach, the pad 42 is coupled to a power source through the interposer 18 rather than ground. The power plane will still operate as a signal return structure for the transmission lines of the build up metallization layer.

**Amendments to the Drawings:**

The attached Replacement Sheets include changes to Figs. 1-4. These sheets replace the original sheets including Figs. 1-4.

The drawings were objected to under 37 CFR 1.83(a) because they failed to show the layer of dielectric material 32 in Fig. 1. Figs. 1 and 2 have been amended to reflect layer 32.

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "20" had both been used to designate de-coupling capacitor (Fig. 1) and conductive cladding (Fig. 3). Figs. 3 and 4 have been amended to change "20" to "21".

Replacement sheets for Figs. 1, 2, 3 and 4 are attached to this response.

No new matter has been added.